DOCUMENT RESUME

ED 094 166 95 CE 001 668

AUTHOR	Seyfarth, John T.; And Others
TITLE	Cooperative Driver Education and Safety Training. Coordinator's Guide.
INSTITUTION	Appalachia Educational Lab., Charleston, W. Va.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Lab. Branch.
PUB DATE	Aug 72
NOTE	64p.; For administrator's guide, see CE 001 666; for instructor's guide, see CE 001 667
AVAILABLE FROM	Director of Diffusion, Appalachia Educational Laboratory, Inc., P. O. Box 1348, Charleston, West Virginia 25325
EDRS PRICE	MF-$0.75 HC-$3.15 PLUS POSTAGE
DESCRIPTORS	*Administrator Guides; Budgeting; *Driver Education; Economic Disadvantagement; Instructor Coordinators; Interinstitutional Cooperation; Low Income Counties; Personnel Needs; Personnel Selection; *Program Administration; *Program Coordination; Program Costs; Program Guides; *Regional Cooperation; Simulators; Traffic Safety

ABSTRACT

Characteristics of the cooperative approach which give this program advantages of low-cost, high-quality, flexible driver-training accessible to more students are: (1) use of technological teaching aids, permitting large class enrollment; (2) shared operating costs and capital investment among cooperating schools or systems; (3) reduced capital outlay by rotation of materials and equipment; (4) reduced personnel costs by sequential scheduling and personnel sharing. This coordinator's guide and its companion publication, the instructor's guide, provide the basic information for establishing and operating the cooperative approach. The program is centrally administered, crossing several school district lines; the coordinator has autonomy to administer the program, and the manual details the five steps he will take: (1) administrative organization, (2) adopting a program, (3) acquiring equipment, (4) hiring personnel, and (5) program scheduling. A sample, detailed budget, typical driving range layouts, simulator specifications, and sample program schedules are appended, along with information on films and miscellaneous equipment. (AJ)

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In driving simulation training students are seated in automobile mock-ups (below) and view changing traffic situations on a movie screen [illegible] (left) as changing scenes [illegible] classroom for driver [illegible]

ED 094166

COOPERATIVE DRIVER EDUCATION AND SAFETY TRAINING

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Coordinator's Guide

CE 001 668

Produced By Appalachia Educational Laboratory, Inc.
Charleston, West Virginia
August, 1972

Produced by the Appalachia Educational Laboratory, Inc., Charleston, West Virginia, a private, non-profit corporation supported in part as a regional educational laboratory by the United States Office of Education, Department of Health, Education and Welfare. The opinions expressed in this publication do not necessarily reflect the position or policy of the Office of Education, and no official endorsement by the Office of Education should be inferred. The Appalachia Educational Laboratory is an equal opportunity employer.

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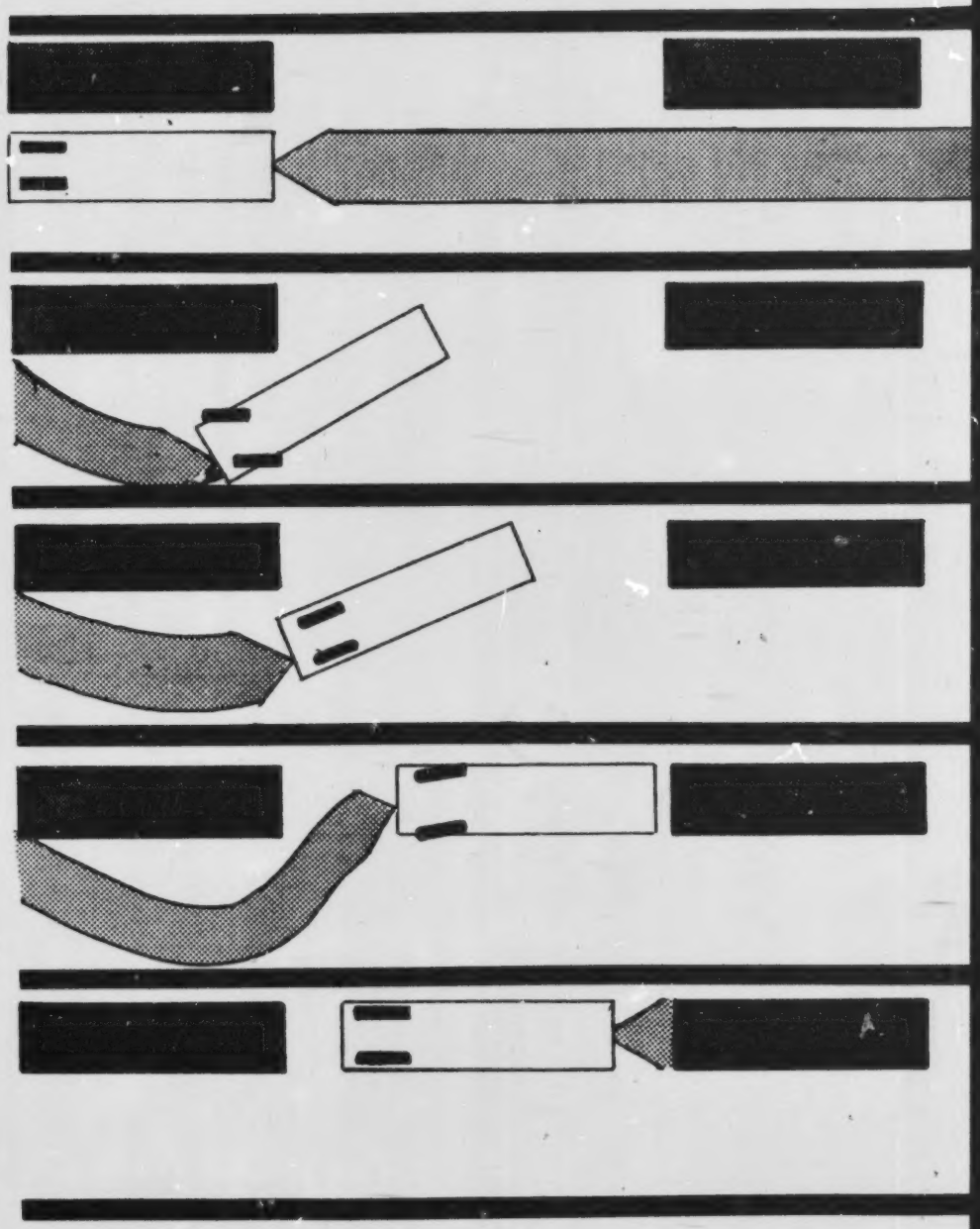

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A Driver-Ed Alternative

American high schools have been attempting to do their part in reducing traffic accidents by placing increased emphasis on driver education and traffic safety training.

Despite this effort, driver education for all students is far from a reality because conventional programs of driver training remain out of the financial reach of many schools. Where driver training is part of the curriculum, the enrollment is frequently limited because of the high per-pupil costs that are characteristic of conventional driver-ed approaches.

In response to this driver education dilemma faced by many schools, the Appalachia Educational Laboratory has developed an alternative approach that for the first time makes driver education feasible for all high schools, without regard to size or location.

Fundamental to this alternative program is the Educational Cooperative--several individual schools or districts working together for mutual benefit. After several years of development, testing and evaluation at a number of sites, the Cooperative Driver Education and Safety Training Program has demonstrated at least four major advantages over traditional programs:

1. It is operable at much lower cost.

2. It gives more students access to driver education.

3. Quality of instruction is as good or better than with the more expensive, conventional program.

4. It is flexible enough to be adapted to the requirements and resources of any school or system.

Characteristics of the Cooperative approach which give the program these advantages include:

1. The use of technological teaching aids such as driving simulators permit large class enrollment and cut behind-the wheel driving time to the extent local regulations permit.

2. Program operating costs and capital investment for equipment are spread among cooperating schools (or systems).

3. Capital outlay is further reduced by cooperative use of equipment and materials on a rotating basis.

4. Sequential scheduling of learning phases at participating schools, along with personnel sharing and team teaching, significantly increases the ratio of students to teachers and reduces personnel costs.

Additional documentation of the advantages of the Cooperative Driver Education and Safety Training Program is included in the Administrator's Adoption Guide, one of the three publications prepared for the initiation and operation of this program. The administrator's guide includes specific per-pupil cost comparisons,

capital investment data, program quality evaluation, a general curriculum description and a brief discussion of organization.

This coordinator's guide and its companion publication, the instructor's guide, are the basic how-to manuals for establishing and operating the Cooperative Approach to Driver Education and Traffic Safety Training. The instructor's guide includes detailed descriptions of classroom events, daily lesson plans, complete listings of free classroom materials and student handouts and a helpful appendix of equipment sources.

This guide for the cooperative driver education coordinator is designed to assist, step-by-step, with the establishment and operation of the program.

Information about these publications is available. Contact:

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Step One / Administrative Organization

It is important to emphasize at the outset that even though the Cooperative Driver Education and Safety Training Program is based on thorough evaluation of operative programs, this guide is not intended to set down strict rules for implementation. Instead, school system administrators and driver education coordinators are encouraged to adapt and apply the program within the bounds of local requirements, resources and applicable state and local regulations.

The organizational structure proven most efficient in operational programs, however, employs a fundamental cooperative structure in which the superintendents of the partcipating school districts comprise the board of directors. In this arrangement, a driver education coordinator is hired to administer the program. (In programs involving fewer than 1,000 students, it has been found that the coordinator will generally be able to assume some teaching duties.)

The cooperative driver education program is centrally administered, crossing several school district lines. It is not an arrangement where each district has day-to-day responsibility for the program. This gives the driver education coordinator sufficient autonomy to administer the program efficiently and relieves individual school system staffs of involvement with the time-consuming details.

A competent driver education coordinator, experience has shown, can be the key to bonus savings within the cooperative program. It is the coordinator who devises ways to economize through efficient use of personnel and sharing of equipment by co-op members.

Experience has also shown that the cooperative structure, once it has been established to implement driver education, frequently lends itself to further utilization by cooperating school districts in a variety of service and instruction areas. (INFORMATION ABOUT EDUCATIONAL COOPERATIVES IS AVAILABLE FROM APPALACHIA EDUCATIONAL LABORATORY, INC.)

Policies relating to organization, procedures and personnel should, of course, be established by the board of directors (participating superintendents). As experienced administrators, they will bring many practical and common-sense suggestions for implementation of cooperative driver education.

The driver education coordinator should be hired early enough to begin participating in the initial organizational phase. Experience in existing cooperative programs has provided a number of generalizations about the driver education coordinator's role.

Coordinator Responsibilities

The driver education coordinator in the cooperative set-up must be capable of initiating the program and supervising its operation. Some of the coordinator's specific duties are:

- Supervision of teachers and maintenance personnel,
- Preparation, review and revision of curriculum and instruction objectives according to local needs and requirements,
- Development of overall program schedule, equipment relocation schedule and utilization procedures,

- Planning and initiating in-service training programs for instructors and paraprofessionals,
- Part-time teaching (in smaller programs),
- Substitute teaching when necessary,
- Acquisition of equipment and overseeing maintenance
- Handling of liaison with auto dealers along with other public relations tasks,
- Cooperation with state, county and local safety officials in implementation of training programs,
- Achieving driver education goals to meet the needs of cooperating school districts,
- Keeping communication open with and among cooperating school districts,
- Collection of data for program evaluation.

Salary Considerations

Along with the other factors which enter any salary discussion--local pay levels, experience, education, job requirements--the length of the work year must be considered with respect to the position of driver education coordinator. The question before the cooperating units from the outset will be whether to hire a coordinator for 12 months or through the regular school term. One successful cooperative at Oak Ridge, Tennessee (involving seven school districts), started its coordinator on a school-term basis and then found that the job demanded a 12-month administrator with appropriate salary adjustment. Whether or not driver education is offered in the summer (at this particular cooperative it is), it was decided that

the task of coordinating driver education demands a full-time administrator. They found during the first four years of their program that the coordinator can use the extra time for:

- On-the-job supervision of instructional staff,
- Establishment of a summer-school program,
- Long-range administrative planning,
- Inventory and acquisition activities,
- Formulation of teacher-training programs,
- Program evaluation and alteration,
- Collection and distribution of information about cooperative driver education to other school systems, cooperatives, traffic safety groups, government agencies and lay groups.

Staff and Budget

Obviously, the size of administrative staff and budget will depend on the size of the program being initiated.

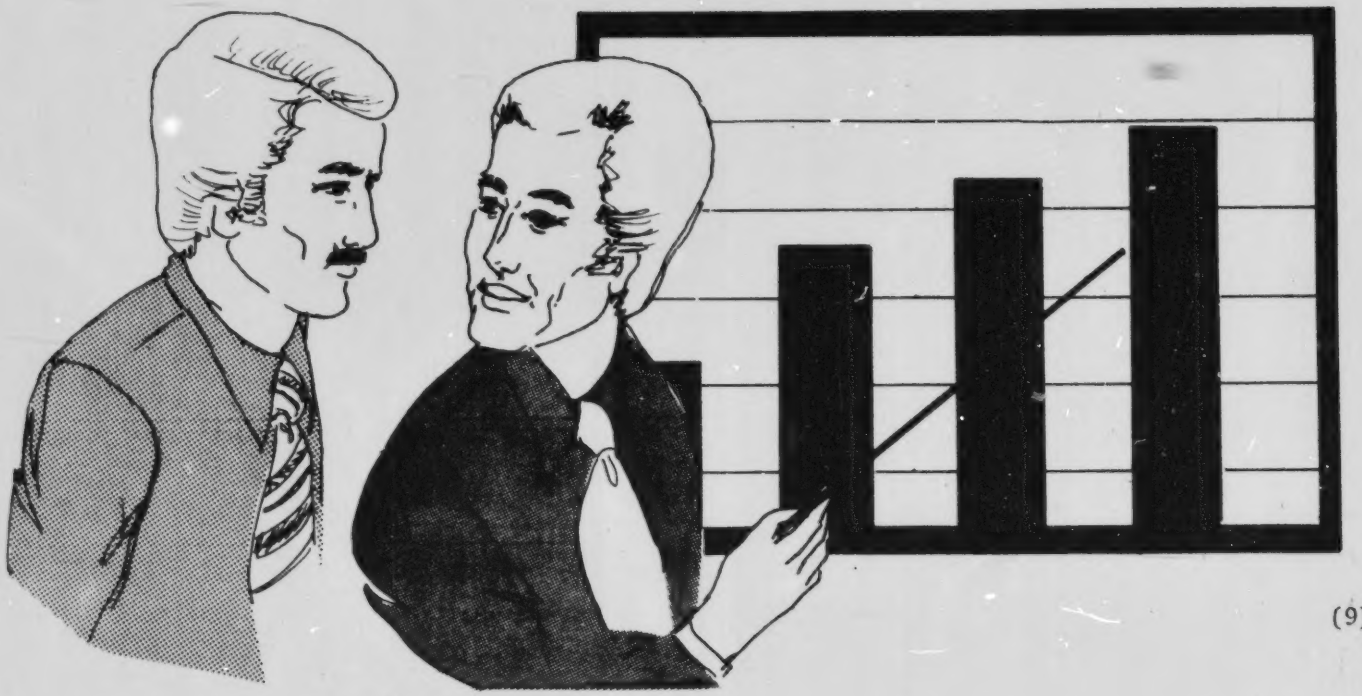
As an example of what staff requirements might be, one well-established cooperative, training 2,000 students, utilized one half-time bookkeeper/secretary and a total 1971-72 administrative budget (salaries and expenses included) of just over $15,000. (A SAMPLE, DETAILED BUDGET IS FOUND IN APPENDIX A.)

Financial Assistance

Driver education administrators are encouraged to explore alternative sources

of financing. Federal aid for initiation of driver training programs is available through the Highway Safety Act of 1966 (Public Law 89-564). The program is administered by the Federal Highway Administration of the Department of Transportation. Requests should be submitted through the governor's highway safety representative in each state.

Other potential sources of funds are state departments of education and private foundations.



Step Two / Adopting A Program

The Cooperative Driver Education and Safety Training Program, as extensively tested and fully evaluated at cooperatives in Kentucky and Tennessee, involves four distinct instructional phases. One of these phases is optional, however, giving the program the flexibility to fit the needs of large or small cooperatives. During a semester of instruction the pupil receives, typically, 50 hours of training in the class and behind the wheel.

Phase One

This is the classroom phase, with 30 instructional hours devoted to 30 specific events. So that films and other classroom teaching aids can be used most effectively, the events at each school are staggered. This alternative schedule, possible within the educational cooperative framework, helps significantly reduce the cost of driver education. (Complete event-by-event lesson plans for this phase are included in the instructor's guide.)

Phase Two

At this point the student begins work in the driving simulator. If driving

range instruction is not available, the phase involves 9 hours work on the simulator. This is cut to 5 hours if range instruction is provided. (IMPORTANT NOTE: THE NUMBER OF BEHIND-THE-WHEEL DRIVING HOURS REQUIRED IN DRIVER EDUCATION IS USUALLY DICTATED BY STATE REGULATIONS. THE COORDINATOR SHOULD STUDY THESE REGULATIONS CAREFULLY BEFORE COMPLETING A PROGRAM PLAN.)

Phase Three

In typical programs, 5 hours are devoted to work on the driving range. This phase is optional, however, and can be omitted where range facilities are not available. (Parking lots and playgrounds--even nearby shopping center facilities--are sometimes utilized very effectively as driving ranges.) When this part of the program is omitted, simulator instruction time is increased. (TYPICAL DRIVING RANGE LAYOUTS ARE FOUND IN APPENDIX B.)

Phase Four

Each student is given two or three hours of behind-the-wheel driving time during this phase in typical cooperative driver education programs. Again, state regulations apply.

The remaining hours are devoted to observation time in a driver training car.

(DETAILED DAILY LESSON PLANS FOR ALL PHASES OF THE COOPERATIVE DRIVER EDUCATION AND SAFETY TRAINING PROGRAM ARE INCLUDED IN THE INSTRUCTOR'S GUIDE, ONE OF THREE PROGRAM PUBLICATIONS.)

Step Three / Acquiring Equipment

Much of the saving inherent in the Cooperative Driver Education and Safety Training Program is the result of technological advance that has produced new teaching tools. The new tools recommended here have proven effective in a number of operative cooperative programs, evaluated thoroughly by Appalachia Educational Laboratory. All the recommended equipment is available.

The Drivocator System

This is one of the new multimedia devices. It is used in Phase I to teach up to 60 students simultaneously. Basic to the system is a dual-track tape mechanism. One-half of the tape is the sound track for the lesson units. The other track contains the magnetic impulses which switch a motion picture projector and a filmstrip projector on and off alternately through each lesson. (SEE PHOTOGRAPH INSIDE COVER.)

Here's how students interact with the Drivocator:

- On the screen before the students a typical traffic problem is portrayed by a color, sound motion picture. As the traffic situation is clearly established, the film abruptly stops . . .

• And a filmstrip frame flashes onto the screen to ask for a multiple-choice response from each student. On each Drivocator desk is a small responder unit (SEE PHOTOGRAPH INSIDE COVER) with four buttons. Each student records his response by pushing button A, B, C or D. Then . . .

• A second filmstrip frame flashes the correct answer and the motion picture projector clicks on to present the next traffic problem.

The film answer frames not only let each student know immediately whether he responded correctly, an explanation is given as to why the response was the correct one. The typical Drivocator unit includes a teacher console which records the responses of each student and provides a cumulative record of each student's correct and incorrect answers.

The number of student stations available with each Drivocator package is optional. For most efficient use of teachers and equipment, it has been found advisable to purchase enough stations for an intact class--usually between 20 and 30 students.

A Drivocator system equipped for 30 students costs approximately $1,000. It may be purchased outright or on a lease-purchase arrangement involving five equal installments. Amortization is ordinarily over a 10-year period. Additional costs include wiring, installation and maintenance.

A complete library of films is available for the system. (SEE APPENDIX C.)

The Driving Simulator (Mobile Unit)

This device is well-named. It gives the student driving experience under simulated but realistic conditions. Some advantages of simulator training

revealed in actual use include:

- "Creation" of driving conditions suitable for any instruction phase or experience level.
- Achievement of adjustive response practice under a varied but controlled environment.
- Elimination of the element of risk and other uncontrolled factors from practice driving.
- Immediate reception of data on individual student performance.
- Improvement of manipulative skill development through provision of opportunity to work on apparent areas of weakness.
- Reduction of personnel costs by significantly reducing the number of behind-the-wheel driving hours that lower the teacher-pupil ratio and raise costs in conventional driver education programs.

In driving simulation, the student is seated in a detailed mockup of an automobile interior (SEE PHOTO INSIDE COVER). A motion picture filmed through the windshield of a moving automobile is projected onto a screen before the student. He is required to respond to the changing traffic conditions on the screen by manipulating the appropriate automobile controls in the proper manner and at the proper time--signaling turns, braking, shifting, steering and decelerating. All such responses are electronically monitored and recorded to provide the instructor with performance and progress scores on individual students and the class as a whole.

Driving simulation is not intended within the Cooperative Approach to Driver Education and Traffic to completely replace behind-the-wheel instruction and observation. In fact, there exist in most states regulations governing the amount of on-the-street time that must be offered in driver training programs.

Rather the mobile driving simulator is used in cooperative driver education programs to reduce costly at-the-wheel instruction to a minimum, a critical factor in bringing driver education within the financial reach of all school systems.

As a general guideline, the National Commission on Safety Education (1964) recommends that a substitution ratio of 4:1 be maintained in substituting simulator training for behind-the-wheel driving experience. This means that for each hour's reduction in actual time behind-the-wheel, four hours of simulated driving be substituted.

The number of student stations available with a mobile driving simulator (like the Drivocator) is variable. The decision on how much station capacity to acquire will depend on the number of students in the driver training program, the number of participating schools and other local factors. While the provision of a large number of student stations makes it possible to reach more pupils at each training session, it also increases the initial capital outlay. Since the simulators are mobile, and may be readily moved from school to school by predetermined schedule, it is advisable to invest in the minimum number of student stations and stagger the program plan among participating schools to keep the simulator unit in constant use.

The experience of existing cooperative programs has shown that an adequate number of simulator teaching stations is usually half the number of Drivocator teaching stations being used in the program.

Existing cooperatives have also found that the most functional configuration for each mobile simulator van comprises from 10 to 16 student stations.

The mobile driving simulator as offered by two major sources consists of integrated mechanical and electrical systems housed in a mobile classroom (SEE PHOTOGRAPH, INSIDE FRONT COVER) along with instructional materials as well as the quality of the equipment in making an acquisition decision. Careful comparison of the maintenance manuals, service contracts, warranties and operator training services supplied by the manufacturers is also advised.

Prior to the purchase of the simulator equipment and mobile classroom, the driver training coordinator should develop specifications. (COMPLETE SPECIFICATION DATA IS FOUND IN APPENDIX D.) These specifications should be incorporated into a formal Request for Bid format and forwarded to manufacturers. Separate Requests for Bids can

be prepared for the mobile classroom and the simulator equipment, or a single request covering both items can be prepared. In their bids, manufacturers should be required to include itemized listings of major construction and equipment costs, delivery and training costs, warranty information and detailed design layouts.

The two leading suppliers in the field are Raytheon Learning Systems, Michigan City, Ind., and the Link division of Singer-General Precision Corp., Binghamton, New York. A 12-station simulator unit, including van (excluding tractor), costs a little over $30,000. As with Drivocators, lease-purchase plans are available. Amortization schedules are also similar. Wiring of the simulator classroom costs approximately $250 and annual simulator maintenance cost is about $1,000. That includes the salary of a part-time simulator repairman and van moving expenses.

The Aetna Life and Casualty Company has prepared 16 training films for the Raytheon simulator system. Allstate Insurance Company has produced 13 films to accompany the Link unit. (SEE APPENDIX E FOR SIMULATOR FILM LISTINGS.)

Both simulator manufacturers supply teacher's manuals, diagnostic check sheets, analysis charts and student profile forms.

Dual-Control Driver Training Automobiles

One of the major responsibilities of the driver training coordinator is obtaining dual-control automobiles for use in behind-the-wheel instruction. Many new car dealerships cooperate in driver education programs by making training cars available to school programs on a loan basis. The coordinator will negotiate appropriate concontracts with the cooperating car dealer, obtain proper insurance coverage, arrange for proper licensing and maintenance of the vehicles.

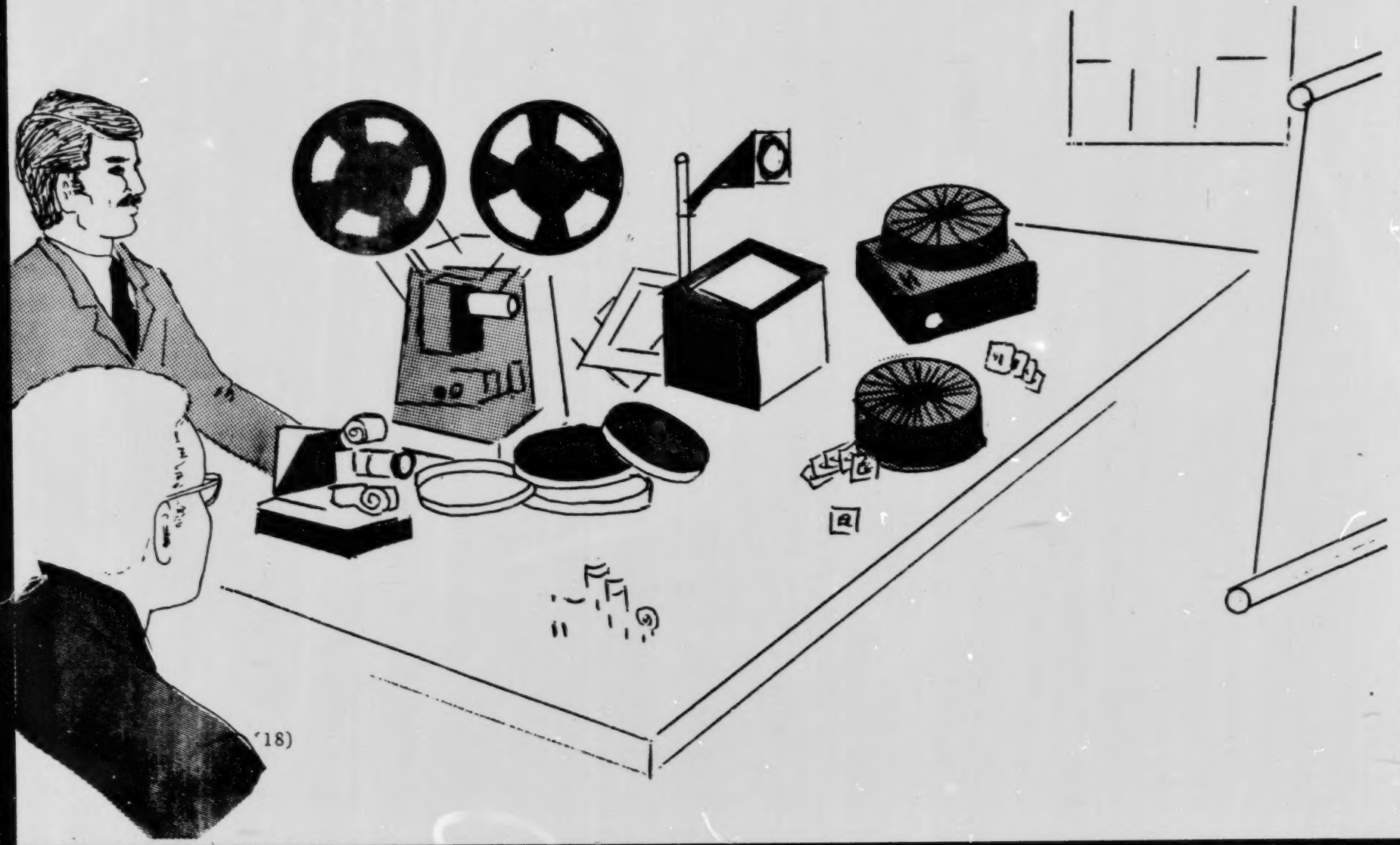
It is also the coordinator's responsibility to see that the training autos are returned in proper condition to the participating dealer at the end of the training period.

The coordinator is advised to maintain strict control over the use of the training automobiles. They should be used only for instruction, with these possible exceptions:

- Instructors may, if authorized by the coordinator, drive the training autos to and from home.

- Instructors may drive the vehicles to authorized educational or traffic safety meetings.

NOTE: APPENDIX F CONTAINS SOURCES OF MISCELLANEOUS EQUIPMENT NEEDED IN THE PROGRAM, INCLUDING SUPPLIES FOR SIMULATOR VANS.



Step Four / Hiring Personnel

The success of the Cooperative Driver Education and Safety Training Program depends on the abilities of the coordinator and his instruction staff. Since much of the saving in the cooperative method depends on complex scheduling and team effort, staff should be selected with an eye on their abilities to work with others, in addition to consideration of experience and professional qualifications.

Qualifications for the program coordinator have been discussed earlier under Administrative Organization. The following are basic qualifications for members of the driver education staff, instructors and paraprofessionals.

Instructors

Driver education teachers are responsible for all instructional activities, and their credentials must meet state certification requirements.

Duties and responsibilities of the driver education instructor include:

- Teaching in the classroom, in the driver simulator, at the driving range (when included in the program) and under on-street conditions.

- Operating all driver education equipment,
- Team teaching during the laboratory phases of cooperative driver education,
- Keeping accurate records on pupil progress and reporting all data to the coordinator,
- Complying with all rules and regulations of the cooperative, the participating schools (or systems) and state and local governments,
- Accepting responsibility for directives from supervisory and administrative staff,
- Working harmoniously with others (important in a cooperative where success is dependent on a team effort),
- Caring for driver education vehicles and reporting all malfunctions to the coordinator,
- Maintaining a high level of personal health so as not to endanger the lives of students.

Paraprofessionals

Many of the marginal instruction and maintenance roles in the driver education program can be handled by paraprofessionals.

Their qualifications include:

- A high school diploma,
- A valid driver's license and good driving record,
- Good physical condition,
- Rapport with or willingness to work with high school students,
- Willingness to work outdoors in all weather conditions,
- Some mechnical aptitude and the ability to operate driver education equipment.

Typical responsibilities and duties of the paraprofessional in a cooperative driver education program include:

- Operation of a variety of equipment, such as the psychophysical tester (which evaluates driver reaction time), the Drivocator unit, the driving simulator, movie and slide projectors, film cleaning materials and videotape equipment.

- Keeping data sheets on driver training cars, along with other vital records.

- Handling such transporation and communication chores as delivering instructional materials to participating schools; transporting driver education vehicles to and from dealers, range sites, garages and service stations; assisting with the movement of the simulator van (or vans) between schools; running miscellaneous errands.

- Assisting on the driving range (when it is used) with such jobs as radio transmitter operation, giving personal attention to "problem" drivers and setting up such special equipment as traffic lane cones, signs, etc.

- Periodically inspecting and cleaning driving simulator vans.

- Conducting preventive maintenance on all driver education equipment.

- Maintaining a filing system for efficient cataloging of all driver education equipment, parts and materials.

In-Service Training

Because it requires careful advance planning and relatively complex scheduling, the cooperative driver education program places unusual demands on instructional personnel. In-service training can help prepare program personnel to cope with new teaching approaches, introduce new instructors to the program and help them understand their responsibilities with relation to other professionals as well as students.

The in-service program for new instructional personnel whould include at least six fundamentals:

- Program orientation, with emphasis on program operation, policies and record keeping.
- Training in the operation of the classroom student response system.
- Training in the operation of the driving simulator.
- Familiarization with the off-street driving range (when used in the program).
- Study of the instructor's manuals and unit objectives.
- Familiarization with planning and evaluation procedures.

Step Five / Program Scheduling

The instructional phases of the Cooperative Driver Education and Safety Training Program are scheduled so that all participating schools may complete the program within a 90-day semester.

The first phase of the program is six weeks of classroom work, taught simultaneously at all cooperating schools. Staff members may be required to teach one or two periods at one school and then drive to nearby schools to instruct additional classes the same day.

At the end of the six-week period the instructional staff is formed into teaching teams for the laboratory phases of the program. These teams implement the cooperative plan by introducing the laboratory instructional phases according to a pre-arranged, staggered schedule. Finishing a phase at one school, the teams move to succeeding schools until all segments of the program have been introduced at each participating school.

To permit this staggered scheduling--essential to basic cooperative economies--some participating schools must wait from two to eight weeks between the end of the classroom phase of instruction and the beginning of laboratory work.

During this period, students return to regularly scheduled study halls. Evaluation results from cooperatives where this intermission has been employed indicate that the lay-off does not adversely effect the driver education process.

The second instruction phase utilizes the driving simulator. The mobile simulator vans, containing 12 or 16 individual student learning stations, are moved from school to school according to the prepared schedule.

Phase three, driving range instruction, is considered optional within the cooperative approach because of the high cost of constructing range facilities. Where this phase is not applicable, driving simulation hours are increased accordingly (within limits imposed by state regulations). Frequently cooperating schools or districts will press existing parking lots or playgrounds into use as driving ranges, or arrange for the use--even on weekends--of convenient shopping center or church parking lots. Busing of students to available range facilities is also employed. Cooperatives that have constructed range facilities have found it practical to provide capacity for from 8 to 12 students to practice driving under the supervision of one instructor.

In phase four, the student obtains driving experience on the community's streets and highways in the company of an instructor.

To conserve equipment and staff, the three laboratory phases are presented concurrently. The student will practice certain driving skills on the simulator one day, move to the driving range the following day for more realistic experience and take to the street the third day to log actual driving hours. This cycle is repeated until the student completes the required number of training hours.

Master Scheduling

Before preparing a master program schedule for the full semester of driver training, the coordinator should secure accurate enrollment figures from principals of participating schools. As nearly as possible, the total number of students enrolled for the program at each school should be divided into classes of equal size. This is important for two reasons. If one or two classes are disproportionately large, the simulator equipment must be stationed at the school longer than the average, thus disrupting the schedule at other schools. Also, large classes disrupt the scheduling

of teaching personnel because large classes require more time for each instructional phase.

The master schedule should specify the beginning and ending dates for each phase of the training program in each participating school. In preparing the schedule, time must be allotted for relocating the mobile simulators between schools. One day is usually sufficient if distances are not too great and advance arrangements have been made for transportation.

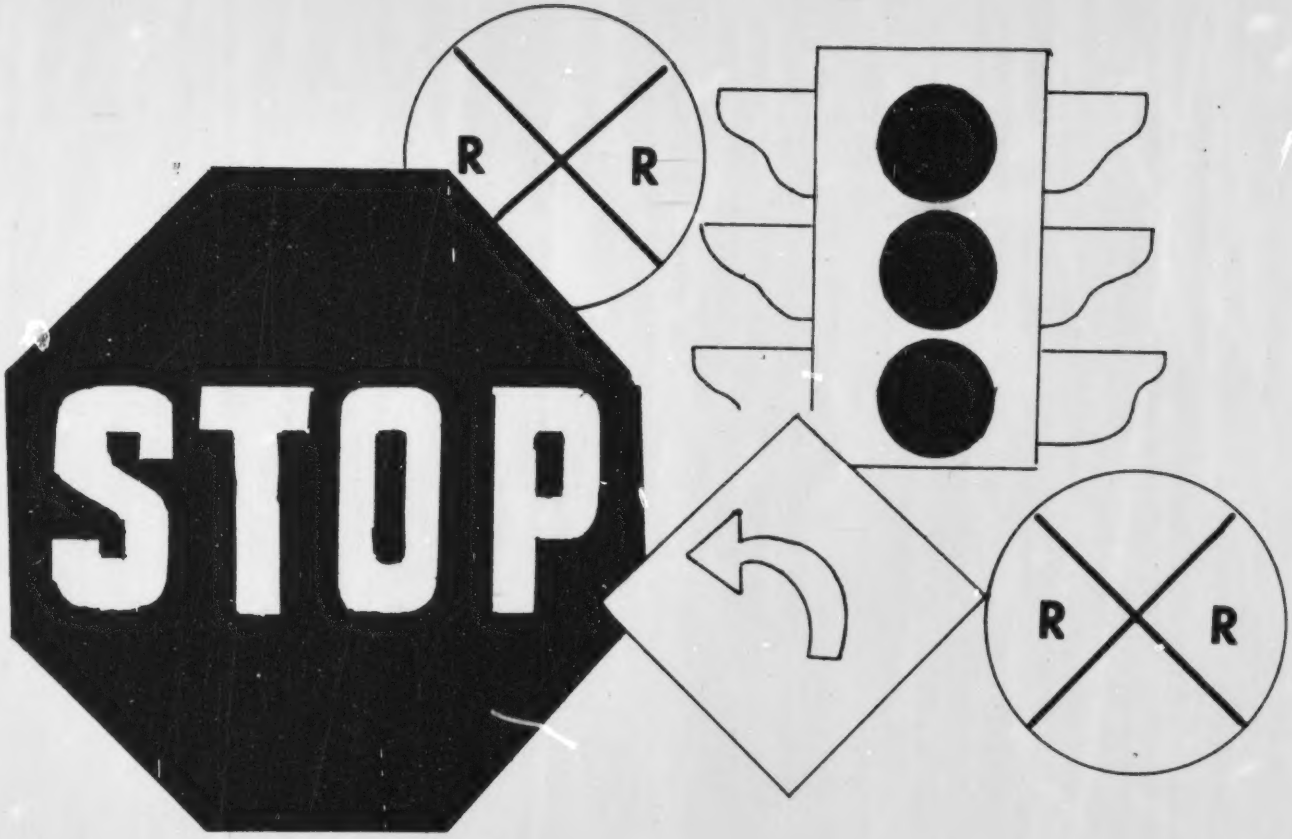
Experience has shown that it is advisable to start the program in those schools which have the largest enrollment. This gives the large schools, which will require more time for behind-the-wheel training, the additional time required.

Some sample master schedules prepared by the Tennessee Appalachia Educational Cooperative at Oak Ridge are included in APPENDIX G. The procedures illustrated involved 13 schools and approximately 2,000 students. However, procedures followed in scheduling the Cooperative Driver Education and Safety Training Program are basically the same in all sizes of programs.

Program Costs

While per-pupil, equipment and personnel costs have been discussed elsewhere, there are some additional program costs that should be listed here. These include the costs for teaching materials, office materials, gasoline, oil, insurance and license fees for training automobiles. Generally, 50 cents per pupil should be allocated for the purchase of supplementary instructional materials.

Allowance must also be made in the budget for the cost of moving the driving simulator equipment from school-to-school.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APPENDIX A

A SAMPLE, DETAILED BUDGET

A SAMPLE, DETAILED DRIVER EDUCATION BUDGET (FOR A 2,000-STUDENT PROGRAM)

Administration	
Coordinator-Teacher	$ 11,000.00
Bookkeeper-Secretary	3,197.00
Travel	200.00
Telephone	1,000.00
Total Expenditures for Administration	$ 15,397.00
Instruction	
Regular Teachers (10)	$ 73,250.50
Other Salaries for Instruction	4,200.00
Other Contracted Services for Instruction	9,200.00
1. Technical Service of Simulators	
2. Movement of Vans	
3. Auto Expense	
Teaching Supplies (Classroom)	1,000.00
Other Materials for Instruction (Office Supplies)	1,500.00
Miscellaneous Insurance	6,300.00
Total Expenditures for Instruction	$ 95,450.50
Fixed Charges	
Contributions To Social Security	$ 4,781.27
Workmen's Compensation	350.00
Rent	5,000.00
Total Expenditures for Fixed Charges	$ 10,131.27
Total Expenditures	$120,978.77
Per-Pupil Cost	60.43

SAMPLE BUDGET DESCRIPTION AND JUSTIFICATION

ADMINISTRATION

Coordinator ($11,000)
The Coordinator is responsible for the operation of the driver education program, which includes scheduling, supervision of instructional personnel, acting as a substitute teacher when needed, and other related tasks.

The Coordinator's proposed salary reflects a proposed 5% increase and change to a 12-month position.

Bookkeeper-Secretary ($3,197)
This is a part-time position.

Travel ($200)
The item includes the travel expense of the coordinator and members of the instructional staff. The item is to be used for attendance at driver education conferences and other appropriate meetings.

Telephone ($1,000)
The item includes telephone service for the administrative staff of the driver education program.

INSTRUCTION

Regular Teachers--10 ($73,250.50)
The item includes the salary of all regular teachers.

Other Salaries for Instruction--Aide ($4,200)
The item includes the salary of the driver education aide on a full-year basis. Recommendation to establish a 12-month position is based on the need to prepare driver education equipment for next school term and assist with the summer program, if conducted.

Other Contracted Services for Instruction ($9,200)

1. Technical Service of Simulators ($3,500)
The item covers general repairs in preparation for classroom instruction of three mobile simualtor vans. The amount includes maintenance of both interior and exterior parts of the vans, preventative and general maintenance and repair on the 36 unit driver education simulators housed in these vans and provides electronic parts peculiar to the simulators.

2. Movement of Vans ($1,700)
The item provides for the movement of the three mobile simulator vans from one school site to another. The cooperative will facilitate movement of the vans by providing:

   * GMC - Two-ton tractor-truck
   * One escort vehicle with driver

3. Auto Expense ($4,000)
The item includes payment for all automotive expenses related to the operation of the driver education program. The item includes payment for:

   * Gasoline and oil,
   * Tires,
   * Repairs to driver education cars not covered by insurance,
   * General maintenance on driver education cars (washing, lubrication, etc.),
   * Busing of students to range sites,
   * Range equipment, other than transmitters,
   * Dual control brakes and other miscellaneous items.

Teaching Supplies ($1,000)
The item includes all necessary instructional materials for the operation of the driver education program. It includes all audiovisual materials, textbooks, film and bulbs for all projectors (16mm) and filmstrip (35mm).

Other Materials for Instruction--Office Supplies ($1,500)
The item includes all duplicating materials needed for classroom and laboratory instruction (paper, duplicating supplies, pads, postage).

Miscellaneous Insurance ($6,300)
The item includes collision and liability insurance on all driver education vehicles; fire and theft on all cooperative equipment.

FIXED CHARGES

Contributions to Social Security ($4,781.27)
The item includes the driver education employees matching contributions to Social Security. The item involves 5.2% of individual salaries up to a maximum salary of $7,800.00.

Workmen's Compensation ($350)
The item covers payment of the premium for Workmen's Compensation Insurance.

The estimated premium is based upon payroll and experience rating for the Cooperative.

Rent ($5,000)
The item includes payment for rent of an old junior high school building for utilities and janitorial services.

SAMPLE DRIVER EDUCATION INSTRUCTORS' SALARY SCHEDULE
1971-72

Years Experience*	Bachelor's Degree	Bachelor's Degree plus 15 hours**	Bachelor's Degree plus 30 hours**	Master's Degree
0	$ 6,400	$ 6,500	$ 6,700	$ 7,000
1	6,650	6,800	6,950	7,250
2	6,950	7,075	7,250	7,625
3	7,300	7,400	7,600	8,000
4	7,700	7,800	7,975	8,425
5	7,950	8,025	8,200	8,800
6	8,250	8,300	8,475	9,025
7	8,600	8,625	8,825	9,425
8	9,000	9,025	9,225	9,850
9	9,250	9,275	9,475	10,150
10	9,550	9,575	9,775	10,500

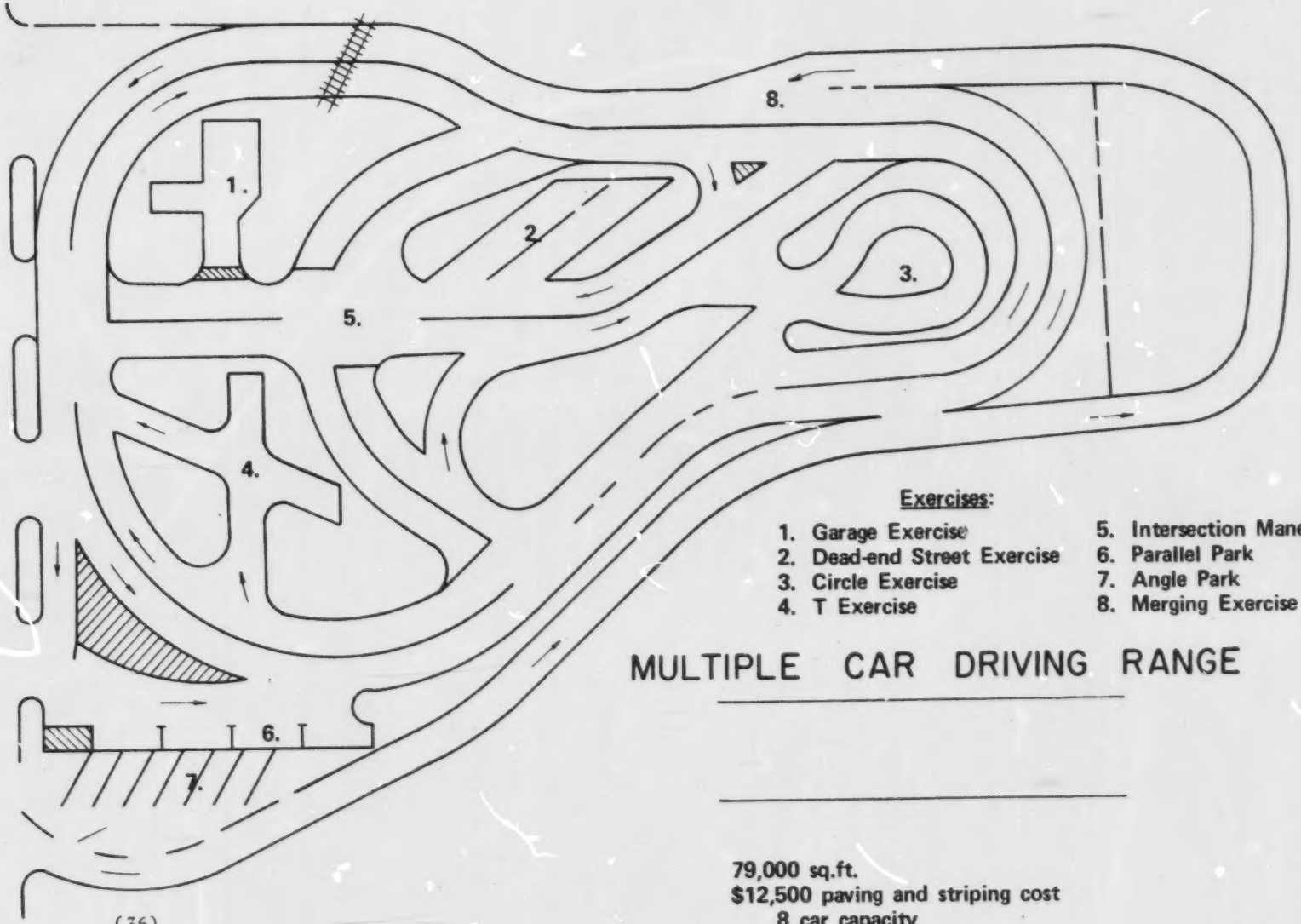
*Experience only in Driver Education
**Hours must be in Driver Education and related subjects

SAMPLE CAPITAL OUTLAY FOR EQUIPMENT
TO TRAIN 2,000 PUPILS

Item	Cost
Mobile, 12-unit Simulator Vans (3)	$101,175
Aetna Drivocator Multimedia Classroom Device (1)	9,705
Projectors	2,178
Tractor Truck for Moving Simulators (1)	3,959
Films, Filmstrips, Reels, Screens, Etc.	4,000
Miscellaenous Equipment	2,500
Textbooks (500)	1,500
Off-Street Driving Range (optional)	56,421
12-Passenger Van (optional)	3,215
TOTAL	$184,653

APPENDIX B

TYPICAL DRIVING RANGE LAYOUTS



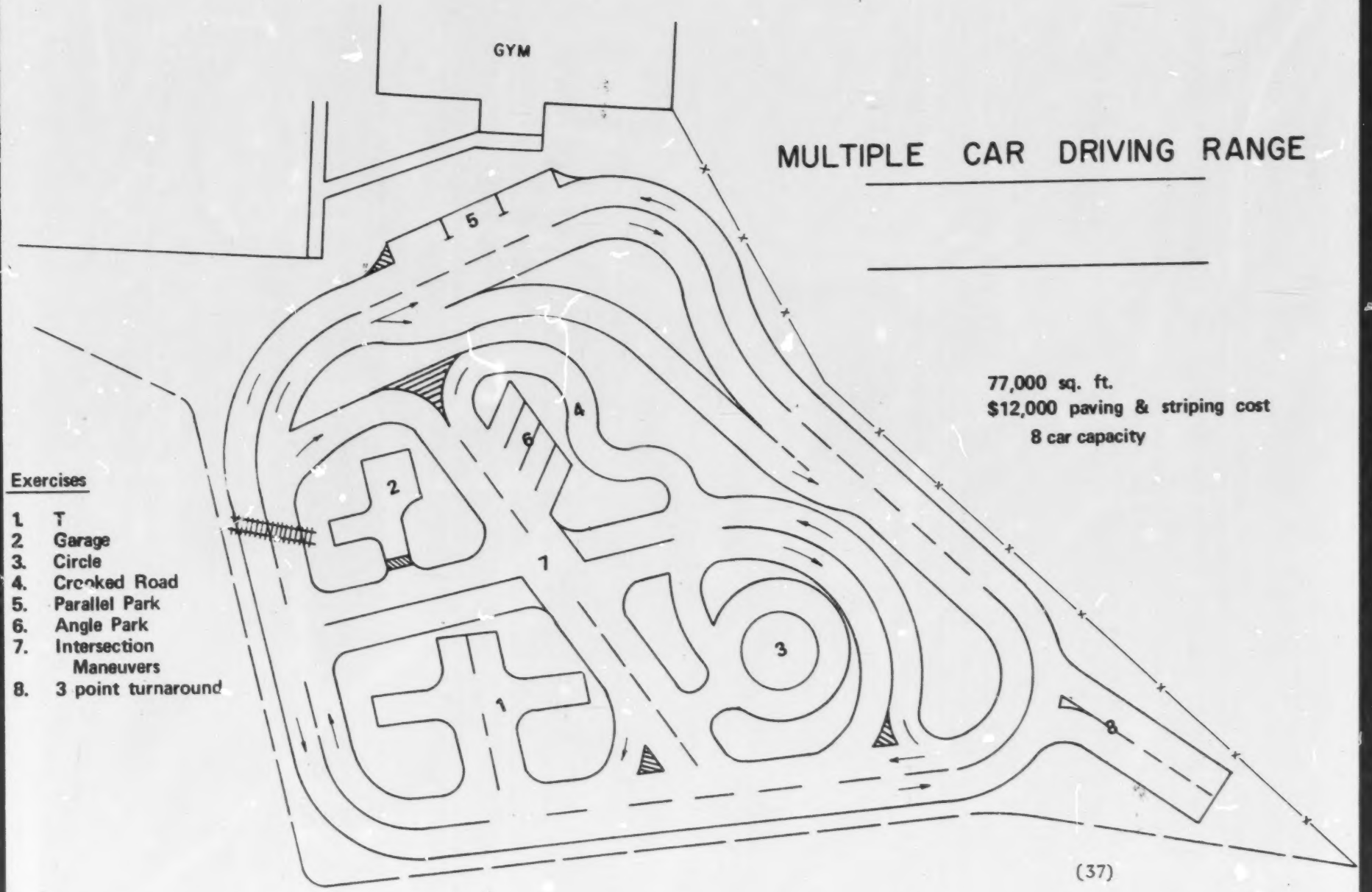
Exercises:

1. Garage Exercise
2. Dead-end Street Exercise
3. Circle Exercise
4. T Exercise
5. Intersection Maneuvers
6. Parallel Park
7. Angle Park
8. Merging Exercise

MULTIPLE CAR DRIVING RANGE

79,000 sq.ft.
$12,500 paving and striping cost
8 car capacity

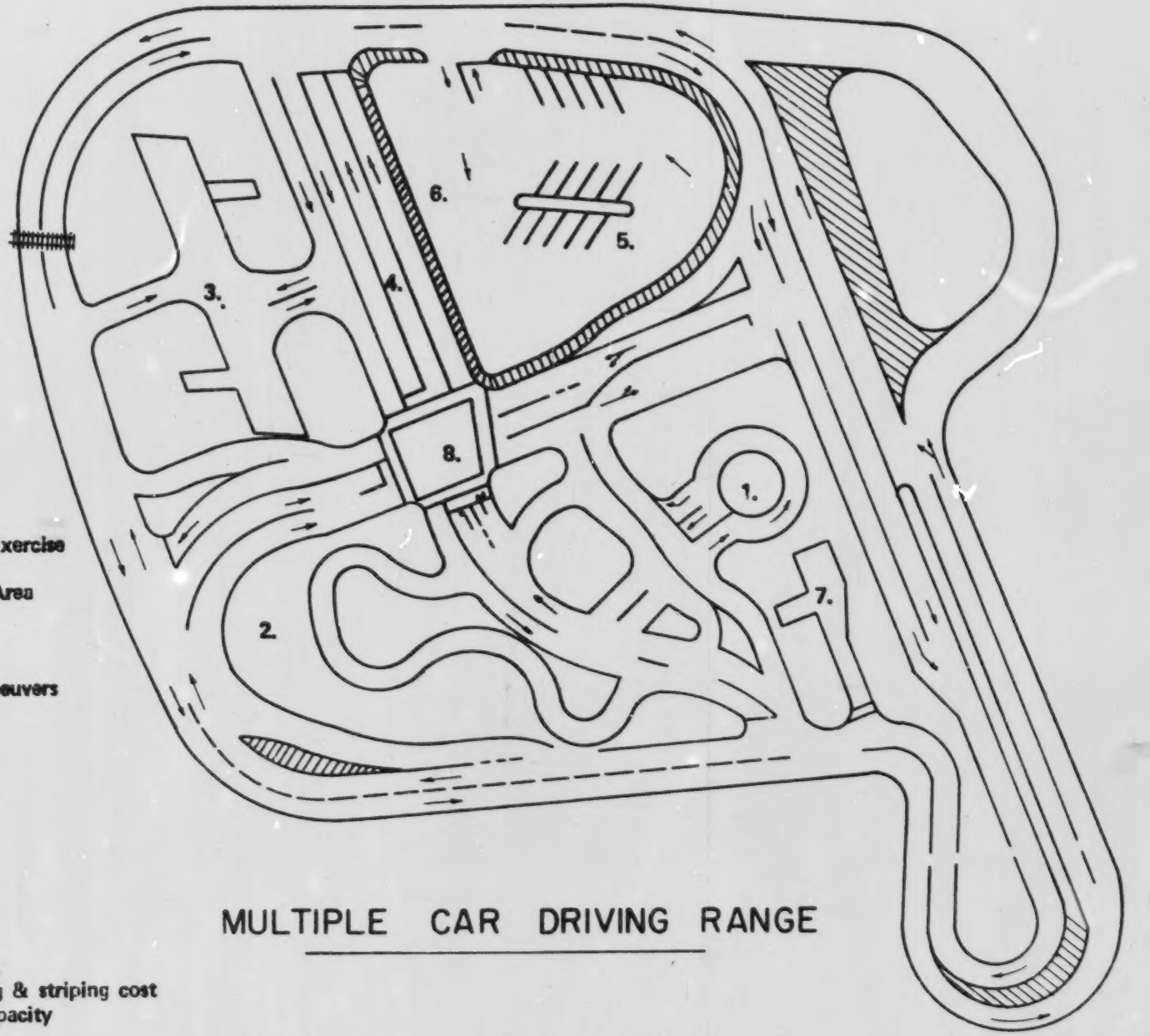
MULTIPLE CAR DRIVING RANGE



77,000 sq. ft.
$12,000 paving & striping cost
8 car capacity

Exercises

1. T
2. Garage
3. Circle
4. Crooked Road
5. Parallel Park
6. Angle Park
7. Intersection Maneuvers
8. 3 point turnaround



Exercises

1. Circle Exercise
2. Crooked Road Exercise
3. T Exercise
4. Lane Changing Area
5. Angle Parking
6. Parallel Parking
7. Garage Exercise
8. Intersection Maneuvers

MULTIPLE CAR DRIVING RANGE

100,000 sq. ft.
$25,000 paving & striping cost
12 car capacity

APPENDIX C

DRIVOCATOR FILMS

DRIVOCATOR SYSTEM FILMS

Information about films can be obtained from Raytheon Learning Systems Company, 475 South Dean Street, Englewood, New Jersey 07631.

DRIVOCATOR FILMS

*1. Forces of Nature I - 29 minutes

*2. Forces of Nature II - 29 minutes

3. Social Pressures - 20 minutes

4. Signs of Life - 27 minutes

5. Rules of the Road - 27 minutes

6. Challenge of Traffic - 29 minutes

*7. Psychophysical Factor - 29 minutes

*8. Basic Skills - 36 minutes

*9. Driving Emergencies - 24 minutes

*10. Adverse Driving Conditions

*11. City Driving - 20 minutes

*12. Attitude Emotions - 20 minutes

*13. Getting Ready to Drive - 36 minutes

*14. Precise Maneuvers - 29 minutes

*15. Open Road - 20 minutes

*16. Defensive - 20 minutes

17. Responsible Driver - 20 minutes

*18. Missing Link - 29 minutes

* Wide Screen

APPENDIX D

SPECIFICATIONS FOR MOBILE CLASSROOM TO HOUSE DRIVING SIMULATORS

SPECIFICATIONS FOR MOBILE CLASSROOM TO HOUSE DRIVING SIMULATORS

It should be carefully noted that the following specifications apply only to the mobile classroom facility and do not include the simulators themselves or the tractor used to transport the classroom van.

If separate bids are used to acquire the mobile classroom and simulators, the simulators must be selected prior to submission of the request for bids for the mobile classrooms.

Scope These specifications cover the requirements for a mobile classroom to be used in housing a 16-station driving simulator system.

General Requirements This facility is required to house a 16-place driving simulator system, an instruction area, projection equipment, and electronics equipment cabinet and other accessories. Both the exterior and interior should be constructed to create a pleasant atmosphere.

The facility should be designed and built in accordance with the best applicable engineering, manufacturing, and trailer industry standards.

All material used should be of good quality and should adequately withstand the conditions for which it is designed.

All ferrous metals should be appropriately treated to prevent corrosion.

All exposed wood should be effectively protected against moisture by sealing and painting surfaces and by caulking cracks and crevices.

The facility should be thermally insulated, dustproof sealed, and capable of repelling water during normal rainfall or washing operations. Insulation should be fiberglass, with a vapor barrier immediately behind interior panels wherever feasible. Fiberglass insulation thickness should be at least 1½ inches inside walls, 3 inches under the floor, and 6 inches over the ceiling.

Construction of chassis frame and body structure should be strong and rigid enough to support the maximum expected gross loads--in transit as well as when in use as a training facility. The chassis should be of the truss type, welded steel, extended over the full width of the trailer and capable of supporting loads summarized below while being towed over rough secondary roads. The body structure should possess sufficient strength and rigidity to resist the torsional and deflection stresses developed by these same dynamic loads.

Estimated weight of anticipated contents:

Front end	
Storage cabinets	200 lbs.
Air conditioning & heating units	525 lbs.
Rear end	
Cabinets and contents	540 lbs.
Distributed equipment	
Simulator units (16) @275#	4,400 lbs.
Projector and console	300 lbs.
Screens & accessories	125 lbs.
Lamps, wires, etc.	180 lbs.
Air conditioning ducts, registers, etc.	150 lbs.
Total distributed load	5,155 lbs.
Total static load, equipment, and personnel	9,720 lbs.

The personnel load, estimated at 3,300 pounds, is applicable only when the facility is stationary and supported on 10 or more jacks.

The air conditioning and heating system should be equipped with a combined cooling and heating unit rated at not less than 33,400 BTUs. The unit must meet industry specifications. It should be mounted on the outside of the front wall of the trailer. Distribution ducts shall be routed to circulate warmed or cooled air in an efficient manner. All materials and workmanship shall comply with accepted standards of air conditioning. A thermostat with a lockable guard should be mounted at the optimum location for uniform cooling and heating. Holding straps for the cooling unit must be rust resistant.

The unit should incorporate all of the standard features, equipment, and accessories currently supplied on the manufacturer's line of trailers (directional signals, brake lights, emergency lights, license plate holders, rear lights, etc.), in accordance with ICC Motor Carrier Safety Regulations.

All hardware, whether functioning mechanically or electrically, exposed or protected, should be of good commercial quality with replacement parts readily available.

All parts, assemblies, and accessories should be constructed and finished in a workmanlike manner, including the removal of burrs and sharps edges, neatness, completeness, and thoroughness of jobs, both electrical and mechanical.

Design of the facility should provide maximum safety and convenience to personnel under all conditions of operation and maintenance.

At rated load capacity, the unit should be capable of traveling on smooth roads at speeds of 50 miles per hour and on unimproved roads at 15 miles per hour.

A set of 10 or more screw jacks, suitable for leveling and supporting the trailer for functional duty, should be provided.

Shipment and Delivery Requirements The facility should be properly serviced and prepared for shipment to prevent foreseeable damage during transit.

Specific Requirements Platforms for up to 8 driving simulators should be provided along each sidewall, successively elevated at 2 to 3 inch riser increments from front to rear, to permit an unobstructed view of the forward wall for each student. First riser on each side should be on a line 12 feet, 6 inches from the inside front wall, and distance between risers should be 60 inches for each platform level. Width of platforms should afford an aisle 30 inches wide extending from front to rear of raised platform area, at basic floor level. An opening 4 inches in diameter should be cut in the floor at the approximate center of each platform and in the comparable areas immediately forward thereof, for electrical wiring.

Major facility dimensions should be as follows:

Outside length excluding front trailer hitch under 55 feet.
Outside width--under 10 feet.
Height, ground to top of any (except removable) device on roof of trailer--under 12 feet.

Frame and undercarriage should be designed so that the unit will be protected from damage resulting from inadequate ground clearance under unusual or adverse road conditions.

Running gear should consist of 3 individually suspended axles and 6 wheels, or adequate capacity to carry the complete superstructure plus the total distributed load of 5,155 pounds.

The 4 forward wheels should be fitted with electrically operated brakes. Tires should be heavy-duty truck type, 14.4 x 8.00, 12-ply or rated adequately for the indicated dynamic loads.

The basic floor surface should be 3/4 inch thick plywood, firmly attached to framing which is spaced to support a uniformly distributed load of 100 pounds per square foot.

Bottom plan should be Homosote Backer Board or equivalent, 1/2 inch thick. All interior floor areas, platforms and risers should be covered with heavy duty vinyl floor tile, marbleized light tan color.

Baseboard moldings should be installed along inside corners, and metal molding should be applied along all outside corners, formed by the junction of risers and adjacent surfaces.

A trough should be built into the floor structure under and along the centerline of each platform area, for the accommodation of electrical wiring harnesses. Cross-section of either trough should measure 4 x 4 inches (nominal). To facilitate wiring installation, a length of flexible steel wire rope, extending from front to rear limits of each trough, should be laid loosely therein with 18 inches of surplus stapled temporarily to the adjacent structure for the convenience of electrical technicians.

Sidewall studs should be at least 1½ inches thick, and diagonally braced as necessary to resist the indicated loads under all ordinary conditions. Front wall framing should be designed to support mounting provisions for a case-mounted 5 x 9 foot radiant (type) pulldown projection screen.

Interior finish should be 1/4 inch thick nonreflective prefinished light oak hardwood plywood.

Exterior wall surfaces should be at least .025 inches thick corrugated aluminum, prefinished with white vinyl enamel and securely anchored to frame members. All joints should be sealed and caulked with "mortite" or equivalent.

Roof structure should consist of trussed joists spaced 16 inches on centers, cross-braced at 2 foot intervals and covered with sheet aluminum at least .025 inches thick, adequately secured to rafters. All seams

should be cool-sealed. Edges should be sealed with waterproof caulking. Drip rail should be installed over each door and down both sides thereof. Roof finish should be white vinyl enamel.

Ceiling should be finished with 1/2 inch thick acoustical board.

Instructor's area should be fitted with storage facilities providing a rack and a shelf for flat storage of printer paper; and adequate latch-type fasteners to secure doors for travel.

Overall lighting should feature six recessed fluorescent ceiling fixtures, each fitted with two 40-watt lamps and travel locks. The fluorescent lights are to be controlled by switches in the instructor's area. Two-way light switches should be installed at each exterior door. All wiring for the lighting system should be 12 AWG, 3-conductor Romex or equivalent, and should be installed in a manner which will assure compliance with the applicable Underwriters' Code.

Miscellaneous lights should include exist lights located at each door, on interior wall, and wired to remain in operation independently of other lighting circuits; an exterior weatherproof porch light receptacle over each door (each equipped with a removable plug-in bracket lamp); and one 20-watt fluorescent lamp mounted on front wall over the instructor's desk.

A ceiling-mounted, two-lamp incandescent fixture should be located 3 feet forward of the second fluorescent unit, and another identical fixture 3 feet aft of the fluorescent unit (counting from the front), and a third in the instructor's area, on the trailer centerline. A dimmer switch located in the instructor's area should control 3 incandescent ceiling fixtures.

Three duplex electrical convenience outlets should be installed in the platform wall adjacent to the center aisle. They should be distributed at relative distances from one another over the length of the aisle to provide maximum accessibility for appliance plug-in. Other outlet receptacles should be located in the instructor's area, on the left-hand forward wall, and on the front wall.

A bulletin board should be mounted on the interior wall opposite the front entrance door and another similar board over the desk in the instructor's area. A chalk board 8 x 4 feet should be mounted across the front wall.

Steps, porch landing, and railings should be provided for each exterior door, equipped with adjustable levelers. Steps and landing should be 48 inches wide and landing should be 48 inches deep. Steps and landing should be constructed rigidly of lightweight metal and designed so that they may be easily removed and stored in appropriate spaces provided inside the trailer.

An electric wall clock, 8 inches in diameter, should be mounted on the side wall adjacent to the rear door in the instructor's area.

An address system should include three 8-inch loudspeakers, each rated at 8 ohms, installed in the ceiling along the lengthwise centerline. Speakers should be fully wired with flex-twisted pairs of 18 AWG wire, to be terminated with at least 15 feet of wire on floor at the console site. A microphone jack should be installed at front of trailer, with wiring to terminate at scoring cabinet site as for loudspeakers, using a 20 AWG coaxial cable.

One CO-2 or equivalent 5 pound fire extinguisher should be mounted in a suitable bracket on the wall at the right hand side of each exit door, approximately at shoulder height.

A power-distribution panel should be enclosed in a suitable cabinet recessed in the front wall. This distribution box should be rated at 100 amp, 220 volts AC and must contain suitable protection devices.

An electrical service cable, 35 feet long, should be furnished for attaching the unit's circuitry to a 100 amp, 220 volt power source. It must contain 4 conductors, each 4 AWG, and should be assembled to heavy duty connectors, one of which is to mate with the exterior receptacle on the wall. Three hooks for stowing the service cable should be mounted above the cable conduit on the exterior front surface of the trailer.

Exterior doors should be of metal construction, 36 inches wide, 80 inches high, weather-tight, and equipped with panic type hardware and keyed alike. Four sets of door keys should be provided. All key locks should be made so that one master key can be used to open all facilities supplied by a given manufacturer under this specification.

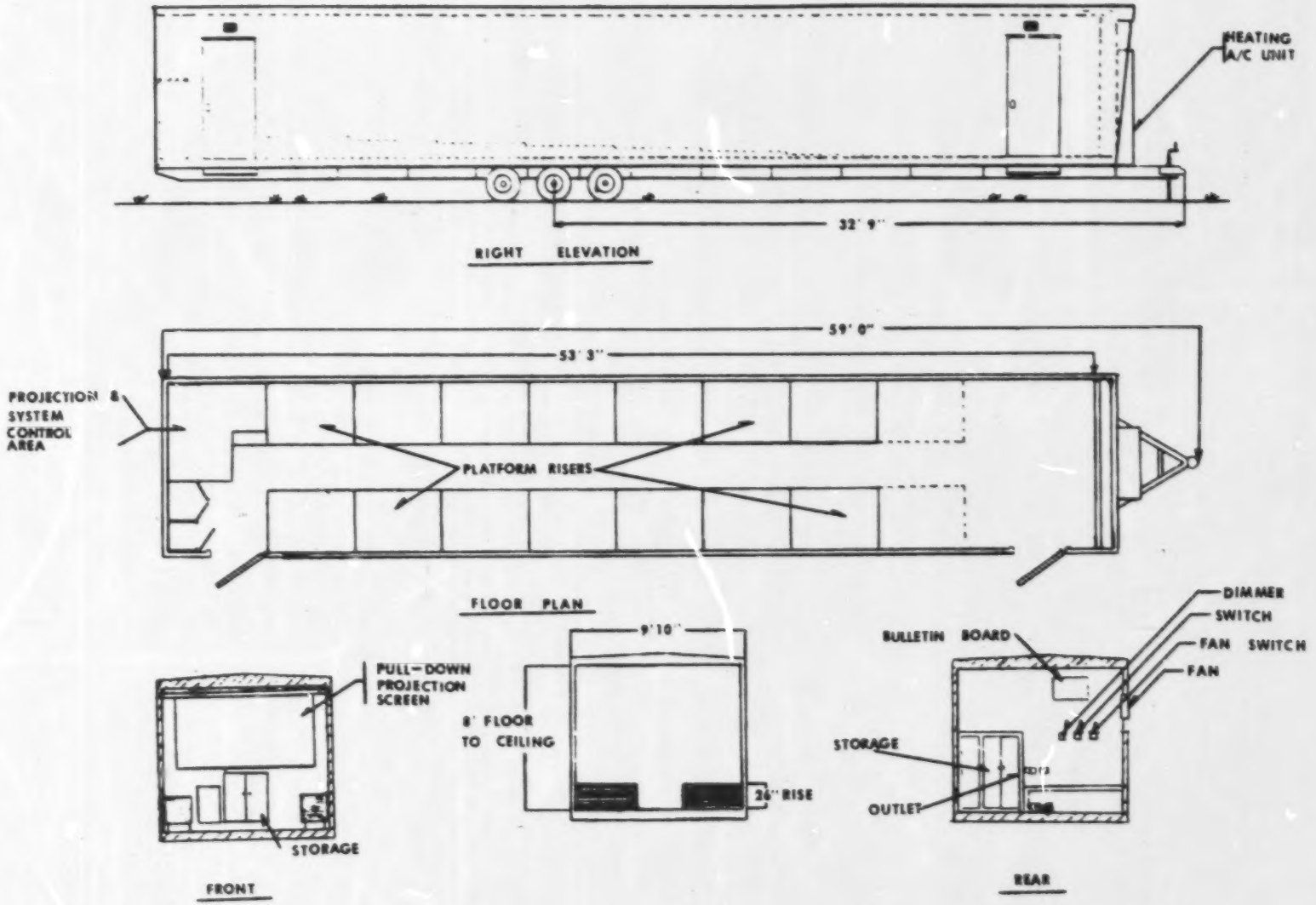
Support Requirements The parking area to be used for the mobile classroom should be relatively level and paved. This area should be a minimum of 60 x 15 feet for 8-12 place units; for 14-16 place units, the area should be a minimum of 60 x 25 feet. If blacktop paving is used, it should be not less than 2 1/2 inches thick. Concrete is recommended because of the weight of the facility.

If the parking area is fenced, an entrance gate at least 12 feet wide must be provided. Minimum turning radius for the tractor trailer unit is 30 feet.

An adequate power source must be provided at the parking site. For an 8-12 place unit a 220 volt, 60 amp, single-phase service is necessary. A 14-16 place unit requires 220 volt, 100 amp, single-phase service. The power service receptacle should be located within 25 feet of the rear of the mobile classroom and secured in weatherproof mounts.

Moving Requirements It is desirable, though not essential, to purchase a tractor truck to move the mobile classroom. Moving can be handled by a local commercial trailer moving company. Schedule of dates and locations should be submitted to several companies for bid. Bid specifications should include provision for blocking and leveling the mobile classroom at each new site. The firm selected should also carry adequate insurance to cover any damage that may occur during the move.

Care should be taken to ensure that all equipmentis stowed safely and securely before the mobile classroom is moved. Development of a checklist of actions to be taken prior to each move is recommended.



Mobile Classroom Housing 16-Place Simulator System

SIMULATOR SYSTEM MANUFACTURERS AND

MOBILE CLASSROOM FABRICATORS

Simulator systems:

Raytheon Learning Systems Company
U. S. Route 12 East
Michigan City, Indiana 46360

Link Group, Singer-General Precision, Inc.
School Trainer Division
Binghamton, New York 13902

Mobile classrooms:

Lyncoach and Truck Company, Inc.
443 Chestnut Street
Oneonta, New York 13820

Medical Coaches, Inc.
Country Club Road
Oneonta, New York 13820

MOBILAB of New Hampshire, Inc.
New London, New Hampshire 03257

Travelab Division
AVID Corporation
10 Tripps Lane
East Providence, Rhode Island 02914

APPENDIX E

DRIVING SIMULATOR FILMS

DRIVER TRAINER SIMULATION FILMS

Details about these films may be obtained from General Precision System, Allstate, Link Division, Binghampton, New York 13902.

1. Let's Starting Driving
2. The Good Turn
3. Moderate Traffic
4. Advanced City Driving
5. Hit the Highways
6. Expressways are Different
7. Shift for Yourself
8. Hazardous Situations
9. In Reverse
10. Parking
11. Driving After Dark
12. Winterproof Your Driving
13. Drive in Review

APPENDIX F

MISCELLANEOUS EQUIPMENT

MISCELLANEOUS EQUIPMENT

Item	Source
Coxco Sound Slide System	Allied Sound Visual Education Company 401 Spence Lane Nashville, Tennessee
Language Master & Cards (adapted for driver education by teacher)	Allied Sound Visual Education Company 401 Spence Lane Nashville, Tennessee
Brake Detonators	American Automobile Association 1712 G. Street, N. W. Washington, D. C. 20006
Traffic Magnetic Board	American Automobile Association 1712 G. Street, N.W. Washington, D. C. 20006
Textbook "Sportsmanlike Driving"	American Automobile Association 1712 G. Street, N. W. Washington, D. C. 20006
Driver Evaluator	American Automobile Association 1712 G. Street, N. W. Washington, D. C. 20006
Brake Reaction Timer	American Automobile Association 1712 G. Street, N. W. Washington, D. C. 20006
Car Models (to illustrate parking, etc.)	American Automobile Association 1712 G. Street, N. W. Washington, D. C. 20006

Item	Source
Overhead Projector & Transparencies (Teacher made)	The 3M Company Film & Allied Products Division 3M Center St. Paul, Minnesota 55101
Dual Brake Control	Associated Engineering Service 2319 122 Street College Point, New York 11356
16 mm Projectors (Graflex)	Singer Education & Training Prod. Link Division 30 Rockefeller Plaza New York, New York 10020
35 mm Filmstrip & Slide	Singer Education & Training Prod. Link Division 30 Rockefeller Plaza New York, New York 10020
Mobile Simulator	General Precision Systems, Allstate Link Division Binghamton, New York 13902
Drivocator Equipment	Raytheon Learning Systems Company 475 South Dean Street Englewood, New Jersey 07631
Projector Screens and Tables	Any source
Range Equipment (Optional) Traffic Cones and Sticks (50 per range)	Bumpa-Tel Box 611 Cape Girardeau, Missouri 63701

Item	Source
Numbered Cartop Signs	Can be made in school shop
Transmitter (FM or AM Model)	High school electronics department
Traffic signs	Can be made in school shop

NOTE: Many of these items are also available from other sources.

APPENDIX G

PROGRAM SCHEDULING EXAMPLES

EXAMPLE ONE (Five Teachers, 588 Students)

Location	Instructional Phase and Procedures	No. Students	Duration	Equipment
All Schools	Classroom Work (Phase One)	588	30 Days	Classroom Materials
School A	Laboratory work phases offered to six daily classes of 48 students each. In each class, students alternately receive instruction as follows: Driving simulation--12 students Range instruction--12 students Range observation--12 students BTW*--12 students	288	20 Days	12-unit simulator 12-car driving range 3 training cars
School B	Laboratory work phases offered to two daily classes of 30 students each. Work divided on rotating basis as follows: Driving simulation--10 students Range instruction--10 students BTW--10 students (NOTE: Students from this school are bussed to School A for lab instruction, one class in the morning, the other in the afternoon.)	60	6 Days	Same as above
Schools C & D (combined) (60)	Laboratory work phases offered to four daily classes of 24 students each. Work divided on rotating basis as follows: Driving simulation--8 students Range instruction--8 students BTW--8 students	96	10 Days	12-unit simulator 8-car driving range 3 training cars

EXAMPLE ONE (Cont.)

Location	Instructional Phase and Procedures	No. Students	Duration	Equipment
School E	Laboratory work phases offered to six daily classes of 24 students each. Work divided on rotating basis as follows: Driving simulation--8 students Range Instruction--8 students BTW--8 students	144	16 days	12-unit simulator 8-car driving range 3 training cars

*Behind-The-Wheel Instruction

NOTE: The above schedule includes 82 days total instruction time and includes eight contingency days for bad weather. The mobile driving simulator is moved from school to school as required. One simulator is required for this teaching team.

EXAMPLE TWO (Five Teachers, 432 Students)

Location	Instructional Phase And Procedures	No Students	Duration	Equipment
All Schools	Classroom Work (Phase One)	432	30 Days	Classroom Materials
Schools A&B (Combined)	Laboratory work phases offered to six daily classes of 24 students each. Work divided on rotating basis as follows: Driving Simulation--12 students BTW*--12 students NOTE: Students from one school bused to the other. Driving range facilities not available.	144	18 Days	12-unit Simulator 4 Training Cars
School C	Laboratory work phases offered to three daily classes of 24 students each. Work divided on rotating basis as follows: Driving Simulation--8 students Range Instruction--8 students BTW--8 students	72	8 Days	12-unit Simulator 8-Car Driving Range 3 Training Cars
Schools D&E (Combined)	Laboratory work phases offered to three daily classes of 24 students each. Work divided on rotating basis as follows: Driving Simulation--8 students Range Instruction--8 students BTW--8 students NOTE: Students from schools D&E bused to school C for laboratory instruction on alternate days.	72	8 Days	Same As Above

EXAMPLE TWO (Cont.)

Location	Instructional Phase and Procedures	No. Students	Duration	Equipment
Schools F & G	Laboratory work phases offered to six daily classes of 24 students each. Work divided on rotating basis as follows: Driving simulator--8 students Range instruction--8 students BTW--8 students NOTE: Students at School F receive three classes in morning. School G students bussed to School F for afternoon classes.	144	18 Days	Same as above

NOTE: The above schedule includes 82 days total instruction time and includes eight contingency days for bad weather. The mobile driving simulator is moved from school to school as required. Two simulators are required for this teaching team.

*Behind-The-Wheel Instruction

This multi-student, multi-media teaching device, the Drivocator, utilizes movie and filmstrip projectors to flash questions on the screen. Students register their answers on desk responder units. The teacher's console records answers on magnetic tape and gives instantaneous scoring on each student.

BEST COPY AVAILABLE

APPALACHIA
Educational Laboratory, Inc.
P. O. BOX 1348
CHARLESTON, WEST VIRGINIA 25325

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